as well as a close-up black and white photograph of areolae. Each accepted species is assigned to one of Schütz's subgenera and also to the series in which Buxbaum placed it. The descriptions include details of plant form and growth habits as well as flowers, fruits, and seeds. Comments on related species or past confusion of plants in cultivation are often made. Location of wild collections are listed and collectors numbers provided for each species.

My curiosity stimulated, and becoming a very small scale collector, I purchased seven unidentified plants, without flowers, appearing to be the genus *Gymnocalycium* from a local nursery, and have attempted to identify them using this book. The identification process required leafing through the book and comparing the descriptions and photographs with my plants. In about an hour and a half I have probably accurately identified two species, possibly three, but I must await flowering of the remaining plants to be able to try placing them in a species. A key to the subgenera and species would have made my task much easier and possibly more accurate.

Despite these limitations, this beautifully produced book is one that collectors of succulent plants, especially cacti, will require.—*Richard E. Norris.*

Henderson, Andrew, Gloria Galeano, and Rodrigo Bernal. 1995. **Field Guide to the Palms of the Americas.** (ISBN 0-691-08537-4, hbk). Princeton University Press, 41 William Street, Princeton, NJ 08540. $75.00. 352pp, 256 color illustrations on 64 plates, 42 line drawings, 554 maps, 6"x 9".

As the guest author of the forward to *Field Guide to the Palms of the America*, Robin Foster makes two bold statements: "Amazing. I thought it would be another twenty years before something as useful as this came out ... " and "This book is a shot in the arm of the study of palms." I could not agree more. This field guide will impact the taxonomy, ecology and ethnobotany of palms well into the twenty-first century.

"But a field guide?" you say, "After all, the authors state at the outset, 'The Guide is not a taxonomic treatment but a field guide for nonspecialists'". However, the term "nonspecialists" is not restricted to school children and casual tourists; it includes anyone who is not involved in systematic research on a particular group, even the *Bactris* specialist who has never delved into *Copernicia* or other genera. It is intended to be used by *anyone* who needs to provide rapid, reasonably accurate identifications of palms seen, studied, or collected in the field: the ecotourist wanting to appreciate the ecosystem, the palm enthusiast collecting seeds for distribution through the International Palm Society, the tropical ecologist inventorying biodiversity and plant-animal interactions, the natural resource manager evaluating habitats, and the conservationist cataloguing endangered species for a worldwide database. What makes this Guide so significant is that, until now, the taxonomy of American palms had never been synthesized and simplified to bring order to all species in all genera and provide standard names among countries. In fact, only a handful of genera have been treated in modern comprehensive monographs and, thus, are not readily accessible to the nonspecialist.

Placing the species level taxonomy of American palms in historical perspective, the authors state in the Introduction: "It had been left by Barbosa Rodrigues, Burret, Bailey, and others in a chaotic state with literally hundreds of names and no way to apply them to real species in nature. ... Over the last decade a new generation of botanists, many of them

natives of tropical countries, has become interested in palms, and our knowledge of the taxonomy of American palms is now based on extensive field work, well-collected specimens, appreciation of variation in nature, and realistic species concepts. Our Guide is based on the work of these botanists." Indeed, the three authors are themselves part of the new generation of palm biologists, representing research centers in both North and South America and a total of over 30 years of extended periods of field experience throughout the neotropics.

However, making sense and order out of the American palm species for nonspecialists comes at a cost in terms of some "cherished" names and popular conceptualizations of species in horticultural use. The authors explain it this way: "Our species concept in this field guide is necessarily a broad one. ... We have tended to combine closely related and doubtfully distinct species and also groups of species that we consider to be part of species complexes. ... Many species are thus quite 'messy' and not easy to understand. Herbarium taxonomy does not have the methodology (and certainly not the number of specimens) to fully understand this kind of variation ... [which] falls more into other fields. ... Our particular concept means that in several instances we have not accepted species of previous botanists. We do not imply that we are 'right' and the others are 'wrong' but stress we have a different concept ... often the difference in opinions are merely a question of ranking." For example, the authors' concept of *Coccothrinax miraguama* is expanded to encompass all the variation denoted by all the species with loosely, coarsely woven but non-spiny leaf sheaths. Likewise *Coccothrinax jamaicensis*, *C. litoralis*, *C. proctorii*, and *C. readii* are all placed in synonymy under the more familiar *C. argentata*.

By accounting for all known variation of all neotropical palms within a simplified hierarchy of conceptually clear-cut, easily distinguished species, this guide accomplishes something unique to the American palm literature: Any palm specimen can be quickly identified correctly to species (i.e. species complex), quickly plugged into the research network and become a vital resource for eventually understanding the biological basis of species variation in palms. This is the crux of the book's impact.

A successful field guide must also be easy to use and well organized. By any standards, the Field Guide to the Palms meets these criteria, as well. Twenty-two pages of introductory material (taxonomic concepts, palm geography, morphological structures, and conventions used in the book) precede an illustrated key to the genera. The genera and species accounts occupy the next 200 pages. Each species is consistently treated to list common names, field characters, distribution, uses, and notes on taxonomic problems or recent research. The next section includes a distribution map for each species. Appendices include country by country checklists and lists of complete synonymy, which provide an easy way to compare species concepts without the species accounts becoming cluttered. The book ends in a spectacular display of 256 color photographs illustrating the more common, evolutionarily significant or structurally beautiful species.

Because this is intended to be used in the field or with field collections, the authors make extensive use of distributions and habitats to distinguish species, as well as highlighting diagnostic field characters in the species accounts. Within the generic accounts, keys are provided for genera exceeding ten or so species. For smaller genera, the combination of distribution, habitats/elevation, and diagnostic features are sufficient to readily distinguish species. For example, of the eleven species of *Ceroxylon*, only five occur in the central region of the Eastern Cordillera of the Colombian Andes. *Ceroxylon alpinum* and *C. quindoense* both have horizontally held leaves and regularly arranged, horizontal or pendulous leaflets. *Ceroxylon parvifrons* has arched leaves and regularly arranged leaflets held in a

"V" formation. *Ceroxylon vogelianum* and *C. sasaimae* both have arched leaves and clustered, multi-ranked leaflets. *Ceroxylon alpinum* occurs below 1800 m and has pebbled fruits, whereas *C. quindoense* occurs above 2000 m and has smooth fruits. *Ceroxlyon sasaimae* occurs below 1800 meters and has smooth fruits, while *C. vogelianum* occurs above 2000 m and has grooved fruits.

Although, some palm specialists and knowledgeable enthusiasts may grumble at the radically expanded species limits, the Field Guide is still *the* book to use by anyone wanting to understand neotropical palm species. It is not only a field guide; it is a unified summary of our current understanding of American palm species and exposes the taxonomic problems that will provide research subjects for years to come. My congratulations to Henderson, Galeano and Bernal.—*Roger W. Sanders, Research Associate, BRIT.*

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